217/782-2113

CONSTRUCTION PERMIT -- REVISED

PERMITTEE

Alton Steel, Inc.
Attn: D. Jeannine Kelly, Environmental Attorney
5 Cut Street
Alton, Illinois 62002

Application No.: 00010015
Applicant's Designation: #7 EAF Mod.
Subject: Electric Arc Furnace No. 7
Date Issued: Draft
Location: 5 Cut Street, Alton

I.D. No.: 119010AAE
Date Received: October 8, 2003

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a modification to electric arc furnace (EAF) No. 7 and expanded operation of the melt shop, as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions:

1. Description

Alton Steel has requested revisions to a construction permit issued to Laclede Steel on June 30, 2000, and revised on August 24, 2000, for improvements to the melt shop at its Alton steel mill, which has two electric arc furnaces, No. 7 and No. 8. In 2003, Alton Steel took over the operations and the corresponding air permits at the Laclede Steel Plant. Originally this Construction Permit authorized modifications and increased throughput for EAF No. 7. Improvements to EAF No. 7 allowed by the permit included: replacement of a capacitor bank, and replacement of oxyfuel burners with direct oxygen injection and a post combustion system. Future steel production from the melt shop was limited to 769,600 tons/year, total. The permit was issued based on the changes to the affected furnaces not triggering applicability of 40 CFR 60, Subparts A and AAa, because the capital expenditure for the project did not qualify it as a modification as defined at 40 CFR 60.14(e). The modifications to EAF No. 7 did increase its capacity and potential annual emissions. Accordingly, Laclede Steel prepared an analysis of the net change in emissions prepared for the potential net increase in emissions related to this modification. Among other thins, this analysis relied upon an emission decrease that resulted from limiting the operation of EAF No. 8 to use as a stand-by unit.

This revised permit continues to cover the modifications made by Laclede. However, it is also revised to address operations of the facility as intended by Alton Steel including: allowing EAF No. 8 to operate as a main production furnace and increasing the melt shop steel production limit to 786,000 tons per year. It also updates the prior

netting analysis of NO_x and SO_2 emissions factors based on 2001 stack test results, shut down of the blooming, pipe and rod mills, and corrects errors discovered by Alton Steel in Laclede's analysis. The operational changes initiated by Alton Steel, as governed by this permit, still result in net emission changes below NSR/PSD applicability thresholds.

Emissions of particulate matter and lead from the furnaces are controlled by a baghouse. Emissions of other pollutants (CO, NO_x, and SO_2) are controlled by equipment design and proper work practices.

2. List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Electric Arc Furnace No. 7	Main Production Furnace	Baghouse
Electric Arc Furnace No. 8	Main Production Furnace	Baghouse

3. Applicability Provisions

a. The affected furnaces for the purpose of this permit are modified EAF No. 7 and existing EAF No. 8, as described in Condition 2.

Note: As necessary to ensure that a major modification does not occur, this permit also addresses other units at this source.

4. Emission Standards

a. i. The total particulate emissions from the affected furnaces including meltdown and refining, charging, tapping, slagging, electrode port leakage and ladle lancing shall not exceed the allowable emission rate specified by 35 IAC 212.321. [35 IAC 212.448]. Accordingly, the emissions of particulate matter into the atmosphere from the affected furnaces in any one hour period shall not exceed the allowable emission rate specified by the equation at 35 IAC 212.321(b).

ii. The opacity from the affected furnaces is subject to 35 IAC 212.123, which provides that:

A. No Person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 IAC 212.122 [35 IAC 212.123(a)].

B. The emissions of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes

in any 60 minute period provided that such opaque emission permitted during any 60 minute period shall occur from only one such emission unit located within a 1000 foot radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period [35 IAC 212.123(b)].

iii. Notwithstanding the above, pursuant to 35 IAC 201.149, the Permittee may continue operation of an affected furnace during a malfunction or breakdown with particulate matter emissions in excess of the above limit as necessary to prevent injury to person(s) or severe damage to equipment. As provided by 35 IAC 201.265, this authorization does not shield the Permittee from enforcement for any such violation and shall only constitute a prima facia defense to such an enforcement action provided that the Permittee has fully complied with all associated terms and conditions.

A. The Permittee shall take reasonable measures to prevent such events and minimize excess emissions. For example: the furnaces and their control system are properly maintained and operation of the furnace is only continued to allow the furnace to be emptied of molten steel. Note: additional provisions addressing malfunction and breakdown may be established in subsequent permits for the affected furnaces.

B. The Permittee shall fulfill applicable recordkeeping and reporting requirements of Conditions 11-1(d) and 12-3.

C. Following notification to the Illinois EPA of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident, pursuant to 35 IAC 201.263.

Note: This authorization and associated terms and conditions is subject to periodic review and possible revision as part of the processing of the CAAPP permit for the source.

b. The emissions of sulfur dioxide into the atmosphere from each affected furnace shall not exceed 2000 PPM [35 IAC 214.301].

5. Non-Applicability of Regulations of Concern

a. This permit is issued based on the modification of the affected furnaces not constituting a major modification subject to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The Permittee has addressed the applicability of PSD, demonstrating that the increase in throughput should not result in a significant increase in emissions of PSD pollutants, subject to the limitations in Conditions 6 and 7.

b. This permit is issued based on the modification of the affected furnaces not constituting a major modification subject to 35 IAC Subpart 203, Major Stationary Sources Construction and Modification New Source Review (NSR). The Permittee has addressed the applicability of NSR, demonstrating that the increase in throughput should not result in a significant increase in emissions of NSR pollutants, subject to the limitations in Conditions 6 and 7.

c. This permit is issued based on the affected furnaces not being subject to the emission limitations of 35 IAC 215.301, because their organic material emissions do not qualify as photochemically reactive material.

d. This permit is issued based on the changes to the affected furnaces not triggering 40 CFR 60, Subparts A and AAa, because the capital expenditure for the project did not qualify it as a modification as defined at 40 CFR 60.14(e).

6. Operational and Production Limitations

Steel production of the affected furnaces shall not exceed 112 tons/hour and 786,000 tons/year. Compliance with the hourly limit shall be determined as a daily average. Compliance with annual limitation shall be determined from a running total of 12 months of data.

7. Emission Limitations

a. Emissions from the affected furnaces combined shall not exceed the following limits:

	Lb/Ton	Lb/Hour	Tons/Year
PM	0.19	21.4	75.2
PM_{10}	0.145	16.3	57.1
CO	2.50	280.0	983.0
NO_x	0.70	78.4	275.0
VOM	0.15	16.8	59.0
SO_2	0.63	70.6	247.6
Lead	0.0024	0.27	0.95

These limits are based on the production limits in Condition 6 and information supplied in the permit application.

b. i. Emissions from the continuous caster shall not exceed the following limits:

	Lb/Ton	Lb/Hour	Tons/Year
PM/PM_{10}	0.001	0.112	0.42
CO	0.012	1.32	4.62
NO_x	0.014	1.57	5.5

These limits are based on the maximum steel production rates allowed by Condition 6, a natural gas consumption rate of 140 cubic feet/ton of steel cast, and emission factors from USEPA's "Compilation of Air Pollutant Emission Factors", as supplied in the permit application.

ii. This Permit is issued based on negligible emissions of SO_2 and VOM from the continuous caster. For this purpose, total emissions of SO_2 and VOM from this unit shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.

iii. This Permit is issued based on negligible emissions of lead from the continuous caster. For this purpose, total emissions of lead shall not exceed a nominal emission rate of 0.005 lb/hour and 0.022 tons/year.

c. i. Emissions from the finishing mills, including the 8", 14", and 22" mill, shall not exceed the following limits:

	Lb/Ton	Lb/Hour	Tons/Year
PM/PM_{10}	0.019	2.17	7.59
CO	0.213	24.0	83.85
NO_x	0.711	79.9	279.5
VOM	0.014	1.57	5.49

These limits are based on the maximum steel production rates allowed by Condition 6, and a natural gas consumption rate of 2,540 cubic feet/ton of steel charged.

ii. This Permit is issued based on negligible emissions of SO2 from the finishing mills. For this purpose, total emissions of SO2 from all such units shall not exceed nominal emission rates of 0.2 lb/hour and 0.66 tons/year.

iii. This Permit is issued based on negligible emissions of lead from the finishing mills. For this purpose, total emissions of lead from all such units shall not exceed nominal emission rate of 0.005 lb/hour and 0.022 tons/year.

d. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

8-1. Emission Testing Requirements

a. i. Within 120 days after achieving the maximum production rate at which the affected furnace EAF No. 8 will be operated but not later than 180 days after initial resumption of operation of such furnace, and at such other times as may be requested by the Illinois EPA, the Permittee shall have emission test(s) conducted for PM/PM_{10}, SO_2, NO_x, CO, VOM, and lead emissions from the affected furnaces EAF No. 8 at the Permittee's expense by an approved testing service, during conditions which are representative of maximum emissions as follows

ii. Within one year of issuance of this permit, and at such other times as may be requested by the Illinois EPA, the Permittee shall have emission test(s) conducted for PM/PM_{10}, SO_2, NO_x, CO, VOM, and lead emissions from the affected furnace EAF No. 7 at the Permittee's expense by an approved testing service, during conditions which are representative of maximum emissions as follows:

iii. During the measurements of PM/PM_{10} emissions, observations of opacity shall also be conducted in accordance with Condition 8-2.

b. i. The following methods and procedures shall be used for testing of filterable particulate matter emissions:

A. Method 5 shall be used for negative-pressure fabric filters and other types of control devices and Method 5D shall be used for positive-pressure fabric filters to determine the particulate matter concentration and volumetric flow rate of the effluent gas.

B. The sampling time and sample volume for each run shall be at least 4 hours and 4 dscm (160 dscf) and, when a single furnace is sampled, the sampling time shall include an integral number of heats.

ii. The following methods and procedures shall be used for testing emissions. Refer to 40 CFR 60, Appendix A and 40 CFR 51, Appendix M for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4

Sulfur Dioxide	USEPA Method 6
Nitrogen Oxides	USEPA Method 7
Carbon Monoxide	USEPA Method 10
PM/PM_{10}	USEPA Method 5 and 202
Volatile Organic Material	USEPA Method 18, 25 or 25A, as appropriate
Lead	USEPA Method 12

c. At least 60 days prior to the actual date of testing, a written test plan shall be submitted to the Illinois EPA for review and approval. This plan shall describe the specific procedures for testing including as a minimum:

i. The person(s) who will be performing sampling and analysis and their experience with similar tests.

ii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of the maximum emissions, the levels of operating parameters at or within which compliance is intended to be shown, if parameters for the process and any control equipment will be determined.

iii. The specific determination of emissions and operations which are intended to be made, including sampling and monitoring locations.

iv. The test methods which will be used, with the specific analysis method.

v. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.

vi. A statement that the testing will be performed by a qualified independent testing service.

d. i. Prior to carrying out these tests, the Illinois EPA shall be notified a minimum of 30 days prior to the scheduled date of these tests with the exact date, time and place of these tests, to enable the Illinois EPA to witness these tests.

ii. If the scheduled date for the test is changed, the Permittee shall inform the Illinois EPA within five (5) working days of the scheduled test date and must specify the date and time of the rescheduled test.

e. A copy of the Final Reports for these tests and compliance status shall be submitted to the Illinois EPA within 14 days after the test results are compiled and finalized.

8-2. Opacity Testing Requirements

a. The Permittee shall have observations of shop opacity performed by a certified visible emissions observer in accordance with USEPA Test Method 9, as further specified below, when the affected furnaces is operating during representative weather and operating conditions.

i. Testing shall be conducted at least annually.

ii. Upon written request by the Illinois EPA, such testing shall be conducted within 45 calendar days of the request or on the date agreed upon by the Illinois EPA, whichever is later.

b. The duration of opacity observations for each test shall be at least 30 minutes (five 6-minute averages) unless the average opacities for the first 12 minutes of observations (two six-minute averages) are both less than 10.0 percent.

c. i. The Permittee shall notify the Illinois EPA at least 7 days in advance of the date and time of these tests, in order to allow the Illinois EPA to witness testing. This notification shall include the name and employer of the qualified observer(s).

ii. The Permittee shall promptly notify the Illinois EPA of any changes in the time or date for testing.

d. The Permittee shall provide a copy of its observer's readings to the Illinois EPA at the time of testing, if the Illinois EPA personnel are present.

e. The Permittee shall submit a written report for this testing within 15 days of the date of testing.

9. Instrumentation

a. The Permittee shall install, operate and maintain instrumentation for the following parameters in the capture system and baghouse for the affected furnaces.

i. Fan motor amperes, and

ii. Furnace static pressure, or

iii. Ductwork static pressure prior to the baghouse.

10. Inspection Requirements

a. For each affected furnace the Permittee shall perform operational inspections on at least a monthly basis of the equipment that is

important to the performance of the total capture system (i.e., pressure sensors, dampers, and damper switches). This inspection shall include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion). Any deficiencies shall be noted and proper maintenance performed.

b. This inspection need not be performed for an affected furnace if it is not operated at all during the month.

11-1. Recordkeeping Requirements for Affected Furnaces

a. The Permittee shall keep the following operating records for the affected furnaces:

i. Steel (metal) production (tons/day, tons/month, and tons/year).

ii. Fuel consumption, as determined directly from fuel meters or indirectly from operating hours of the burners and their rated capacity.

b. The Permittee shall keep an operating log for each affected furnace which includes information on unit status and operating schedule.

c. The Permittee shall keep a maintenance and repair log for each affected furnace.

d. i. The Permittee shall maintain detailed records of periods when operation continued during malfunctions and breakdowns, including continued operation with excess emissions as addressed by Condition 4(a)(iii). At a minimum, these records shall include:

A. A full and detailed explanation of why malfunction or breakdown occurred;

B. The date and length of time during which operation continued under such conditions;

C. The effect of the malfunction/breakdown on emissions and whether Condition 4(a)(i) or (ii) may have been exceeded.

D. The measures used to reduce the quantity of emissions and length of time during which such operations occurred; and

E. The steps the Permittee will take to prevent similar malfunctions or breakdowns.

e. The Permittee shall maintain records of the following items related to emissions.

i. The standard emission factors (lb/ton) used by the Permittee for estimating controlled emissions from the affected furnaces, which information shall be based on site-specific test data, representative test data or methodology for estimating emissions published by USEPA, with supporting explanation and calculations.

ii. Emissions of: PM, PM_{10}, SO_2, NO_x, VOM, CO, and lead in tons/month and tons/year.

f. The Permittee shall keep records for all opacity measurements for the affected furnaces made in accordance with USEPA Method 9 for the affected operations that the Permittee conducts or that are conducted on its behalf by individuals who are qualified to make such observations. For each occasion on which such measurements are made, these records shall include the formal report for the measurements if conducted pursuant to Condition 8.2, or otherwise the identity of the observer, a description of the measurements that were made, the operating condition of the affected operations, the observed opacity, and copies of the raw data sheets for the measurements.

11-2. Recordkeeping for Units Other Than Affected Furnaces

a. The Permittee shall maintain the following records related to emissions of (1) the continuous caster, and (2) the finishing mills. As records of certain information are to be kept in a file, the Permittee shall review and update such information on a periodic basis so that the file contains accurate information addressing the current circumstances of the source.

i. A file that contains the standard emission factors (lb/ton) used by the Permittee for estimating emissions from such units, which information shall be based on site-specific tests, manufacturer’s data or methodology for estimating emissions published by USEPA, with supporting explanation and calculations.

ii. Records for the amount of materials handled by the affected units (tons/month) related to the applicable emission factors, on a monthly basis.

iii. Detailed records for each period of malfunction or breakdown accompanied by excess emissions including a description of the event, an estimate of control measures that were present during the event and an estimate of the additional emissions that occurred during the event.

iv. Records for emissions, in tons/month and tons/year based on the emission factors and other information contained in other required records, with supporting calculations.

12-1. Reporting Requirements – Reporting of Deviations

The Permittee shall promptly notify the Illinois EPA, of any deviation of the permit requirements, as follows: These reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

a. Malfunctions or breakdowns accompanied by excess emissions shall be reported in accordance with Condition 12-3.

b. Deviation from Condition 6 or 7 shall be reported within 30 days.

c. Other deviations shall be reported with the quarterly report, if required pursuant to Condition 12-2(b).

12-2. Reporting Requirements – Periodic Reporting

a. The Permittee shall submit a semi-annual compliance report to the Illinois EPA that includes:

i. Steel production (tons)

ii. Detailed information on deviations that were not previously reported and a summary of deviations that were previously reported.

b. If there is a deviation during the first or third calendar quarter, a quarterly report shall be submitted.

12-3. Reporting Requirements - Notifications

a. i. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible upon the occurrence of excess emissions due to a malfunction or breakdown.

ii. The Permittee shall submit a follow-up report to the Illinois EPA's regional office in Collinsville, providing an explanation of the occurrence as outlined in Condition 11-1(d), within 10 days.

13. Two copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
Springfield, Illinois 62794-9276

and one copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

Please note this permit has been revised to reflect new data on the potential changes in annual emissions of NOx and CO, to address operation of the facility by Alton Steel, and enhance enforceability of permit provisions.

This Permit does not excuse the Permittee from complying with other applicable requirements and shall not constitute a prima facia defense for any enforcement action for any such violation.

If you have any questions on this permit, please call Kevin Smith at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:KLS:psj

cc: Region 3

Attachment 1

Revised Evaluation of Net Changes in Emissions

Table I Future Potential Emissions (Tons/Year)
Based on annual melt shop production of 786,000 tons.

VOM	NO_x	PM	PM_{10}	CO	SO_2	Lead
65	560	83.2	65.1	1,071.5	248.7	1.00

Table II Past Actual Emissions (Tons/Year)
Based on average production rate for 1995-1996*(786,000 tons/year).

VOM	NO_x	PM	PM_{10}	CO	SO_2	Lead
59.4	546	78.2	61.4	981.2	224.9	0.88

Table III Net Emissions Change (Tons/Year)

	VOM	NO_x	PM	PM_{10}	CO	SO_2	Lead
Table I	65	560	83.2	65.1	1,071.5	248.7	1.00
Table II	59.4	546	78.2	61.4	981.2	224.9	0.88
Difference	5.6	14	5.0	3.7	90.3	23.8	0.12

* The years 1995-1996 were chosen as the representative baseline production years due to the downturn in the U.S. steel economy in 1997 and 1998 which led to Laclede's bankruptcy in late 1998 and continued decline in steel production until plant shutdown in Fall 2001.

KLS:psj